

A THICK OXIDE P-GATE NMOS CAPACITOR  
FOR USE IN A PHASE -LOCKED LOOP CIRCUIT  
AND METHOD OF MAKING SAME

ABSTRACT OF THE DISCLOSURE

In a low-pass filter for a phase locked loop (PLL) circuit, a capacitor formed by an N-type substrate, a P-type region formed on the N-type substrate, a thick oxide formed over the P-type region, a P<sup>+</sup> gate electrode formed over the thick oxide and coupled to a first voltage supply line, and P<sup>+</sup> pick-up terminals formed in the P-type region adjacent the gate electrode and coupled to a second voltage supply line, whereby a gate-to-substrate voltage is maintained at less than zero volts to maintain a stable control voltage for the PLL.